Fermilab Today

Friday, July 16, 2004

Calendar

Friday, July 16

3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

4:00 p.m. Joint Experimental Theoretical Physics Seminar - 1 West

Speaker: C. Gay, Yale University

Title: Time-Dependent Amplitude Analysis of B_d --> J/psi K* and B_s --> J/psi phi and a Lifetime Difference in the B_s System

Monday, July 19

THEORETICAL ASTROPHYSICS SEMINARS WILL RESUME IN THE FALL

3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over

4:00 p.m. All Experimenters' Meeting - Curia II

Wilson Hall Cafe

Friday, July 16

New England Clam Chowder

Western BBQ Burger $4.75

Turkey Tetrazzini $3.50

Meatballs Teriyaki Over Rice $3.50

Bistro Chicken & Provolon Panini $4.75

Assorted Personal Size Pizzas $2.75

Carved Top Round of Beef $4.75

Wilson Hall Cafe Menu

Chez Leon

Weather

Chance Thunderstorms **82º/62º**

Extended Forecast

Weather at Fermilab

Current Security Status

What's up with the Linear Collider?

The second in a series of Fermilab Today stories on the International Linear Collider

Tug Arkan (left) and Harry Carter inspect an RF structure before sending it on to SLAC for testing.

Linear Collider R&D at Fermilab

Fermilab scientists and engineers are active collaborators in the development of both X-band (warm) and superconducting (cold) technologies under consideration for an International Linear Collider.

"Warm" radiofrequency cavities operate at 11.4 GHz, within a range designated as "X-band" in rf nomenclature dating back to research secrecy policies during World War II. Cold rf cavities operate at 1.3 GHz, within the "L-band." Much of the development of warm technology has centered at SLAC and at KEK Laboratory in Japan, while the TESLA collaboration centered at DESY, in Hamburg, Germany, has led the efforts in cold technology.

"Fermilab has made important contributions to both warm and cold technologies," said Shekhar Mishra, coordinator of Fermilab's linear collider efforts. "We will continue to expand our work in accelerator physics and

IIT Hosts Successful BEACH 2004 Conference

Conference Chairman Nickolas Solomey (left) with Nicola Cabibbo at the Beach 2004 conference. (Click on image for larger version.)

The Illinois Institute of Technology hosted the Sixth International Conference on Hyperons, Charm and Beauty Hadrons ("BEACH 2004") from June 27 to July 3. The 83 talks at the conference included presentations by Fermilab experiments KTeV, SELEX, CDF, DZero, MIPP, MINERvA, HyperCP, FOCUS and E835.

"There were a lot of interesting topics covered," said conference chairman and IIT professor Nickolas Solomey. "KTeV presented a new value for V_{us} -- a major constant in particle physics that describes how certain particles interact with others." This new value, which confirmed a 1999 result from the KTeV hyperon group, affects experiments involving hyperons and kaons as well as worldwide neutrino physics results. "This shows how results from one part of our field now impact most other parts," noted Solomey.

The V_{us} result was mentioned by the introductory speaker, Nicola Cabbibo, and the summary speaker, Fermilab's Joel Butler. Cabibbo, a theorist and professor at the University of Rome and president

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technology to be a significant player in ILC design and construction."

In collaboration with SLAC and KEK, Fermilab has developed accelerating structures and girders for the warm ILC. And, for more than a decade, Fermilab scientists have been collaborators on the TESLA project, where key components of the TESLA Test Facility, including modulators and radiofrequency couplers, are provided by Fermilab.

In collaboration with other laboratories, universities and industry Fermilab is progressing in these areas:

- Development of the electron source for a cold linac
- Design of a new TESLA damping ring; and study of a warm pre-damping ring. Damping rings "cool" the motion of electrons and positrons so the beams can be tightly focused. Fermilab could continue developing the final design of a damping ring for either warm or cold technology
- Development of simulation tools to study beam transport from damping ring to interaction point
- Development and production of warm rf structures that have achieved performance requirements for use in a linear collider
- Design, production and testing of a cold niobium accelerating cavity and its power input devices

"When the International Technical Recommendation Panel makes its decision," Mishra said, "Fermilab will be prepared to contribute in either direction."

of the Pontifical Academy of Sciences, contributed essential pieces to the Standard Model and to matrix elements such as V_{us}.

Another major result presented at the conference, and heatedly discussed in a Wednesday afternoon working group, was evidence for pentaquark states. While a dozen experiments have reported evidence for the phenomenon, another dozen haven't seen the states. Bottom quark, charm particle, and several other new results were also presented.

Announcements

Fermilab Flushing

The main site domestic water flushing was successfully completed this week. Industrial Cooling Water flushing will take place all next week at Fermilab. The work will begin Monday, July 19, 2004 at 6:00 a.m. and continue through 6:00 p.m.,Monday through Friday. You may experience a slight water discoloration. If you have questions or concerns about this maintenance procedure please contact Greg Gilbert at x 6835, cell phone (630) 404-1016 or long range pager (630) 722-7609. Thanks for your patience while we complete this maintenance activity.

Summer Day Camp

The Fermilab Summer Day Camp has two openings in the the third session. Session dates are July 26 - August 13. The cost for this three week session is $265.00. If you are interested in these openings, contact the Recreation Office, x2548 or x5427.
more information

Blood Drive - August 2 and August 3
Oberweis Dairy - Give a pint, Get a

In Fermilab's Photoinjector Lab at AZero, Helen Edwards (left), Kai Desler, formerly of DESY and now a Fermilab postdoc, and Peoples Fellows Philippe Piot and Markus Huening work on the design of a superconducting RF cavity for TESLA. The photoinjector is a sister to the one at DESY and includes a TESLA cavity that has operated more than five years. Edwards' group hopes to install a second TESLA cavity in the coming year, to operate at a higher gradient than the present one. (Click on image for larger version.)

In the News

From *Kane County Chronicle*, July 11, 2004

Tiny Technology

Editor's note: This story is part of an occasional series about the people and projects of the Fermi National Accelerator Laboratory in Batavia. By Tom Schlueter

BATAVIA — A noisy elevator ride is required to reach the construction site 350 feet below the prairie grasses at Fermi National Accelerator Laboratory.

The ride lasts 1 minute, 50 seconds before it comes to a halt in a cavern gouged out of limestone.

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quart!

There will be a Blood Drive on August 2 and August 3 from 8:00 a.m. to 2:00 p.m. in Ground Floor NE Training Room in Wilson Hall. Appointments can be scheduled by calling Lori at x6615 or online.

New Classified Ads Posted on Fermilab Today

New classified ads have been posted on Fermilab Today. A permanent link to the classifieds is located in the bottom left corner of Fermilab Today.

Free English Classes

NALWO-sponsored free English language classes for beginning and advanced levels are Fridays at the Users Center from 9:30 a.m. to 11:00 a.m.

From *The Shorthorn*, July 15, 2004

Computer aids physics research

Large storage space is needed for research in high-energy physics

By Kyle A. Vernon

In a well-hidden corner of campus lies a technological beast.

It is known as the Distributed and Parallel Computing Cluster. One hundred and ninety-three Pentium Xeon processors, 189 gigabytes of memory and 73 terabytes of disk storage are all tied together by the experience and expertise of a joint research team formed by the university's physics and computer science departments.

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